

WHAT IS CLAIMED IS:

1                   1.     In an optical network having a plurality of interconnected nodes,  
2     each node capable of selectively switching optical signals in a first wavelength channel  
3     and an input fiber and to any one of a plurality of wavelength channels and output fibers,  
4     a method of restoring connection between said nodes upon a failure of said network, said  
5     method comprising

6                   maintaining at each of said nodes a synchronized database of network  
7     connections between said nodes;  
8                   sending messages to other nodes to initiate restoration operations by a  
9     node noticing said failure; and  
10                  recalculating network connections around said failure by each node from a  
11     synchronized database at said node.

1                   2.     The method of claim 1 wherein said recalculating network  
2     connections step is performed independently by each node.

1                   3.     The method of claim 2 wherein said synchronized database  
2     maintaining step comprises  
3                   accepting results of said recalculating network connections at all of said  
4     interconnected nodes of said optical network; or  
5                   rejecting said results of said recalculation steps at all of said  
6     interconnected nodes of said optical network if one or more nodes do not complete said  
7     recalculation network connections step successfully.

1                   4.     The method of claim 3 wherein said accepting results substep is  
2     performed upon acknowledgment by each node of successful completion of said  
3     recalculation network connections step.

1                   5.     The method of claim 4 wherein successful completion of said  
2     recalculation network connections step is acknowledged by transmitting an  
3     acknowledgment message to said node noticing said failure, said node transmitting a  
4     message to all other of said interconnected nodes of said optical network to update  
5     databases of said interconnected nodes of said optical network with said results.

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1                   6.     The method of claim 3 wherein said rejecting results substep is  
2 preformed by lack of acknowledgment by one or more nodes of successful completion of  
3 said recalculation network connections step.

1                   7.     The method of claim 6 wherein said node noticing said failure  
2 transmitting a message to all other of said interconnected nodes of said optical network to  
3 abort said results.

1                   8.     A fiberoptic network having a plurality of interconnected nodes  
2 with each node capable of selectively switching optical signals in a first wavelength  
3 channel in an input fiber to any one of a plurality of wavelength channels and output  
4 fibers, said fiberoptic network comprising  
5 a control network having a reserved wavelength channel between the  
6 interconnected nodes for carrying signaling and control signals for network restoration  
7 and provisioning operations.

1                   9.     The fiberoptic network of claim 8 wherein said signaling and  
2 control signals comprise Internet Protocol signals.